

COST and MANAGEMENT

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• EDITORIAL •

Unemployment Insurance

The news that the Dominion Government had decided to inaugurate a system of Unemployment Insurance throughout the Dominion, subject to the permission of the various Provinces or by amendment to the British North America Act, has been received by business with general satisfaction; and even the later announcement, to the effect that business, the Dominion government and labor, will contribute jointly to this insurance fund, failed to cause any show of dissatisfaction. Of course, it was generally understood that such would be the case in connection with the proposed Ontario Act. The general satisfaction, however, is the result of the fact that, at long last, the Dominion Government has decided to "go places and do things." Surely an Unemployment Insurance Act should be a Dominion Act, and not a Provincial one. It is, of course, under the B.N.A., the duty of the various Provinces to administer insurance within their own borders, but, despite the reluctance of some Provincial Governments to let go of such authority, it seems that Unemployment Insurance will be a Dominion Government Act and not a Provincial one. Prime Minister King now does not think that it is necessary for the provinces to be one hundred per cent. in favor in order to secure an amendment to the B.N.A. to permit of such Dominion legislation, but it is to be sincerely hoped that none of the Provinces will attempt to hamper the Dominion Government in this connection, and that the required legislation will be enacted with all possible speed.

New Deal for Business

President Roosevelt is said to have now realized that certain of his efforts to lessen unemployment in the U. S., and to increase business, have had just the opposite effect, and a new deal, so far as business is concerned, is said to be near. Without going into details, it is certain that business has at least hit some kind of a pocket in the U. S. during the past two months, although whether this is a deliberate attempt on the part of big business to halt the President's New Deal and to insist on a balanced budget, as well as to force a reduction in business taxation, or whether the slowing up of the business revival is the result of the New Deal, is something everyone is not quite agreed upon. In any event, Secretary of the Treasury Morgenthau has announced that the Government

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will endeavour to balance the budget by a reduction of \$695,000,000 in government expenditures, and that further pump priming by the government is no longer necessary. To offset this pump priming and to place unemployment census and has appealed to business to place more workers more workers in gainful employment, the President has announced an on its payroll. Whether this will have the desired effect is problematical, but, if big business can be assured that the President is sincere in his efforts to drastically reduce government expenditures, and business taxation, and, at the same time, balance the budget, it may be that this will be sufficient to prime the pump once more, and that business will increase. Canada will watch with interest the results of this new "New Deal."

Workmen's Compensation in Quebec

The news that Premier Duplessis of Quebec will recast the Workmen's Compensation Act of that Province has been received with approval by both employer and employee alike. The medical profession does not like the sections of the act which specially refer to them and have protested to the Premier. The latter has stated that the workman now receives less than formerly, and yet the costs to the employer are twenty to twenty-five per cent. higher. In that case, something is sadly wrong, and so the Premier has announced his intention to revise the act. The Premier further stated his intention to substitute for the present act, one that will be fair to both employer and employee, and such substitution is undoubtedly necessary. A good accident record apparently does not do the employer any good and, as a matter of fact, it would seem that he is being penalized in the interests of competitors who maintain the least desirable working conditions. As a result, intolerable burdens have been forced on business, which undoubtedly lessen opportunities for employment, and, as Premier Duplessis puts it very succinctly, "If there are no employers, there is no employment, and no wages."

At Headquarters

It is pleasing to report that members, generally, are taking considerably more advantage of the Reference Library maintained at headquarters than was formerly the case, and calls for such literature in October reached a new high mark. We are not satisfied, however, that full advantage is taken of such facilities, and members are urged to ask for any literature on file at headquarters. The Forum Section, commenced in October, has been very well received, but it is pointed out that such a page can only be continued just so long as members take advantage of it, to either ask for information or to supply information asked for.

Your Secretary-Manager has just returned from a trip to Montreal, where he visited the Montreal Chapter, attended a Directors' meeting and addressed the members at a regular meeting. It is impossible to estimate,

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nor is it desirable to estimate, the dollars and cents value of this visit, but it is certain to have far reaching results in the future. We received a grand reception from both the directors and the rank and file of members, and we trust that this visit will be but the first of many to the Montreal Chapter.

Membership.

Over twenty new members are listed in this issue, and many more than this number should be listed in the December issue. By the time these lines appear in print, the new Kitchener Chapter should be an accomplished fact, and, by the time the December issue is ready for print, it is hoped that another new Chapter in the Niagara Peninsula will be an actual fact. Toronto Chapter should also bag many more members within the next month, and with Hamilton and Montreal holding up nicely in this regard, the membership is increasing rapidly. Efforts will be made to organize a Chapter in the London district, and it looks, now, that the Vancouver and Winnipeg Chapters will be re-organized next spring, ready for the following year. Altogether, the outlook is considerably brighter in this connection than for several years, and members can be assured that no effort is being spared to boost the membership very materially.

Reference Literature

RECEIVED IN OCTOBER

Depreciation and Orthodox Accountancy Principles.

Accountants' Journal. September 20.

An editorial containing sound advice to business men generally, and should be of interest to all accountants.

Costing Terminology.

The Accountants' Student. October.

An article of value to all Cost Accountants, and especially to students. This article gives a fairly comprehensive explanation of a large number of costing terms.

Presidential Address of the President of the Institute of Cost and Works Accountants at the sixteenth National Cost Conference, held in London, September 30th to October 2nd, 1937.

A fine address, tracing cost conditions in England from 1906 to 1913, and from 1930 to the present time, this address gives a real insight into business conditions in England over a long period, and is one which should be read by all Cost Accountants.

The Costs of Distribution.

The Accountant. October 2nd, 1937.

An editorial of considerable value to all interested in the cost of distribution, especially in the retail trade.

REFERENCE LITERATURE

RECEIVED IN NOVEMBER

The Financial Statements of Grain Exporters and Shippers.

The Canadian Chartered Accountant. November.

A well written article, by William Aitken, C.A., and of value especially to those interested in the grain trade.

The Accounts of an Automobile Distributor.

The Canadian Chartered Accountant. November.

An article of considerable interest, by V. Randolph Clerihue, C.A., to all accountants, whether engaged in public practice or otherwise.

To What Extent Can the Practice of Accounting Be Reduced to Rules and Standards?

Journal of Accountancy. November.

A splendid article, written by Gilbert R. Bryne, and which was awarded first prize in the recent fortieth anniversary contest by the American Institute of Accountants, and is one which is of considerable value to all accountants and cost accountants.

Distribution Costs as Factors in Pricing Policy.

National Association of Cost Accountants. November 1, 1937.

A splendid article, written by Howard C. Greer, Director, Department of Accounting and Marketing, Institute of American Meat Packers, Chicago, Ill., and Professor of Accounting at the University of Chicago. Deals with costs of distribution in relation to price discrimination and allowances for differences in cost of manufacturing, sale or distribution resulting from different quantities delivered. The enactment of the recent Robinson-Patman act in the U. S. A. brought home to cost accountants the fact that they were faced with the problem of analyzing the costs of distribution in order to assure management that price differentials, being granted, did not make more than due allowance for differences in cost of sale for delivery, and to provide a basis for modifying price schedules where more than due allowance was being given. In this connection, the article referred to is very timely, but should be read by all cost accountants, and especially by those who have difficulty in determining distribution costs.

Hydro Electric Power Costs

By
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General Manager, Beauharnois Light, Heat & Power Company,
Montreal, Canada

Given before the Montreal Chapter, Canadian Society of Cost
Accountants and Industrial Engineers

Mr. President and Gentlemen:

You will forgive me perhaps if I admit at the outset that my basic training has been along engineering lines, and that my remarks this evening in discussing power costs are more likely to be considered from an engineering than an accounting point of view.

Early in my professional career, I discovered that there was a distinct connection between engineering and accounting. I found that, whilst it was necessary for me to make estimates of the probable cost of proposed engineering works, it was also considered necessary (after such works were authorized), to place in the hands of accountants the responsibility of recording the actual cost of such work according to accounting methods, which differed materially from engineering methods.

In practice, this meant that accountants were "dogging my trail" continually, and I commenced to encounter difficulties in relating the accountant's statement with my own estimates.

This condition of affairs caused me to ponder a bit, and to consider the relationship between engineering and accounting with some care, with the result that I took more than a passing interest in accounting technique as a precautionary measure, lest I should continue to find myself unable to recognize, in the final accounting statement, any similarity with my preliminary estimate.

What at first appeared to be merely accounting peculiarities, designed for the purpose of making a simple engineering estimate unrecognizable, soon intrigued me by the possibilities of co-ordination of ideas and efforts of both engineers and accountants, to the end that a common basis might be devised which would provide the engineer with a record which would be useful for future estimating purposes, and the accountants with a record which met recognized accounting practice.

Having reached this conviction, I set to work to co-operate with my accounting friends as closely as possible, with the result that my engineering path has been smoother, and I have found it much easier to prepare estimates with confidence that the final accounting results would not vary greatly therefrom.

I recall, many years ago, discussing the question of making estimates with a successful man, and his advice to me in making estimates was to set out the cost of all the items you could think of, add them up and multiply the answer by two.

HYDRO ELECTRIC POWER COSTS

In order that there may be no misunderstanding as to the scope of this discussion tonight, it should be pointed out at the outset that I will confine myself to the cost involved in providing customers with energy produced by the hydro-electric method. Most of you who have considered the matter at all will probably be inclined to consider electricity as a commodity, but I suggest to you that it is not a commodity in the ordinary sense of the word, but an agent of energy. From this point of view, it would seem that the relations between a producer and consumer of electrical energy differ from those of a merchant and purchaser, and are more nearly like those of landlord and tenant.

Each consumer, in reality, utilizes a part of the generating, transmitting and distributing equipment which makes up a power system, and receives, in some proportion, a benefit from all the forces employed in operating that system. In reality, the consumer rents a part of the facilities maintained by the producer for his use. I take it that everyone present realizes that electricity must be produced and delivered to the consumer at the moment he demands it; that storage of electric energy has, so far, been found impracticable.

Power Costs.

For purposes of cost analysis, it is usually considered convenient to divide a power system into three divisions, each of which represents a different set of functions. These divisions are as follows:

1. Generation.
2. Transmission.
3. Distribution.

Generation:

The term "generation" for the purpose of this discussion is taken to mean the operation involved in converting the energy available in water powers into electrical energy. As affecting costs of generation, I would like to point out some of the physical characteristics which have to be taken into account in determining the manner in which this operation is to be carried out in the most satisfactory and economical manner.

Water power is, in reality, potential energy arising because precipitation and evaporation in practical operation result in a continual process, one stage of which involves the flow of water through streams and rivers throughout the country, downward towards the sea from the land areas above sea-level, which vary considerably in elevation, and often extend to many thousands of feet. It is the falling water which creates the water powers.

The potential power is a function of the quantity of water on the one hand, and of the distance through which it falls, on the others.

You can readily appreciate that wide variations in the cost of generation might easily occur because of variations in the quantity of water available and variations in the distance through which the water falls, besides many other factors.

As to the quantity of water, this might be said: that the quantity

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depends, in the first instance, upon the extent of the drainage basin feeding the river or stream, the precipitation (which varies in different localities and at different seasons of the year), and also upon the character of the terrain comprising the drainage basin. If the terrain is densely wooded and flat, the rate of run-off will be slow, and reasonably uniform. If, on the other hand, the terrain is barren and precipitous, the run-off will be more speedy and less uniform.

To give you a concrete example, the flow of the St. Lawrence river above Lake St. Louis is considered to be very uniform, in that the drainage basin has uniform characteristics so far as precipitation is concerned, and in that the Great Lakes form a series of natural reservoirs which tend to correct irregularities in the run-off, with the result that the ratio of extreme high to extreme low flows is about as two is to one. This variation between maximum and minimum does not occur annually, but only over long periods of time. On the other hand, there are a large number of rivers and streams in Canada where the ratio of maximum to minimum flows may vary anywhere from ten to a hundred to one, and where the variations occur within much shorter limits of time than is the case of the St. Lawrence river.

It is obvious, therefore, that such factors as these affect very materially, not only the amount of the potential energy which is actually realizable in practice, but also the cost of generation.

As incidental to the construction of a hydro-electric generating station, the question of the rights (riparian and otherwise) affecting the particular water power which it is proposed to develop, must be carefully examined, and it may be found that such rights are, in whole or in part, owned by some other private interest, and if not owned by private interests, appear by consent, if not by constitutional right, to be considered as a resource falling under the political jurisdiction of the province in which the water power occurs, and, if on a navigable river, is subject to the control of the Federal Government, insofar as the interests of navigation are concerned. In this connection, it seems to be generally considered that the interests of navigation are paramount to those of power.

Practically speaking, therefore, a private company must acquire by purchase such water rights, if owned by private individuals, and obtain appropriate authority (usually by emphyteutic lease in the Province of Quebec) which prescribes the conditions under which the development may be undertaken, and always subject to approval by the Federal Government at Ottawa if the development is on a navigable river. The approval of the Federal Government, where necessary, is usually made subject to the company undertaking to provide all safeguards which are necessary to protect the paramount interests of navigation.

No actual construction of a generating station may be undertaken until these preliminary steps have been completed and the aforementioned authorizations granted.

As a matter of passing interest, I might mention, as applicable to water rights owned by private riparian owners, that many court decisions have held that undeveloped water rights are worth \$40 per H. P.

HYDRO ELECTRIC POWER COSTS

A hydro-electric generating station usually consists of a masonry or concrete dam, part of which is used as the substructure for the power house with appropriate openings therein (equipped with control gates) for the purpose of conducting the water to the hydraulic turbines, and part of which is used as a spillway (usually equipped with appropriate control gates) for the purpose of regulating the disposal of the surplus water in the river caused by variations in the flow; a powerhouse in which is installed hydraulic and electrical machinery designed to meet the peculiar conditions in each case; a canal or pipe line for the purpose of conveying the water to the powerhouse, and a tailrace or discharge channel for the purpose of disposing of the water after it has passed through the powerhouse and the potential hydraulic energy has been changed to electrical energy.

It is quite impossible to make any general statement of the relative magnitudes in terms of cost of the various elements which, together, comprise a generating station, because each generating station does not embrace all the variable factors affecting costs which may be found in another generating station, or to the same degree; but, in the larger generating stations, it is usually found that the hydraulic and electrical machinery constitute a relatively small proportion of the total cost.

This much can be said, however, about costs of generation, namely: that hydro-electric developments involving generating costs within the range of \$100 to \$200 per installed H. P. have economic merit.

Relation Between Installed H. P. Capacity and Effective Capacity:

It must not be assumed that the installed H. P. capacity of a generating station may be counted upon as the effective generating capacity of that station, for the very simple reason that hydraulic and generating equipment is like equipment used in other processes, in that it requires repairs at times and, therefore, is not available 100 per cent. of the time.

As the inherent nature of electrical energy is such that the consumer has become accustomed to count upon its availability at any instant that he may require it, and as substantial inconvenience would be caused were the energy not so available when required, (due to the necessity of repairing equipment), it is essential that spare generating capacity be provided. To be effective, such spare capacity should comprise one complete generating unit when the number of generating units is not too large, and 15 per cent. of the total generating capacity when the number of generating units is large; so that, to the cost per installed H. P. mentioned above, there would have to be added a percentage representing the cost of a complete generating unit, or 15 per cent. of the total generating capacity, as the case may be, in order to arrive at a cost per H. P. effective capacity.

Still another important factor which has to be considered in connection with generation of hydro-electric energy is the fact that such developments usually involve a considerable construction period, due, in the first instance, to the time required to acquire appropriate rights and approvals from legislative authorities, and also due to the inherent physical nature of such projects themselves.

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The construction period of an ordinary hydro-electric project would probably embrace three years of time, so that it is necessary to estimate the requirements three years in advance. This, in turn, means that it is necessary, to take care of sudden and unexpected increases in demands for energy, to have reserves of generating capacity over and above that required for normal operations and over and above that required for repairs. What this reserve should be in terms of total load might be the cause of some difference of opinion, but the fact that such reserves are necessary in some degree is, I think, well recognized. Taking the space capacity and prudent reserves together, it is probable that an installed capacity of 25 per cent. in excess of the latest peak demand is not unreasonable.

As a preliminary to the discussion of "transmission," I might point out that, for economic reasons, it is the current practice to generate electricity at a relatively low voltage, somewhat of the order of 12,000 volts.

Transmission:

The term "transmission" is usually understood to comprise that combination of electrical functions which is necessary to transport electrical energy from the generating station to the centre where the power is to be distributed amongst the ultimate users, as it is rather uncommon to find a hydro-electric power site so located in relation to the ultimate user that transmission is unnecessary.

For the purpose of our discussion this evening, transmission will be taken to embrace two separate functions, the first is called "step-up transformation," and the second, that involving conducting the energy to the consuming centre. Sometimes "step-down transformation" is included in transmission when it is not involved in the group of functions embracing distribution; when so involved, it is considered to come under the general classification of distribution. It is in this latter sense that it will be considered this evening.

For economic reasons, electrical energy is not transmitted at generator voltage, because of the cost and losses involved, but is stepped up to a higher voltage through the use of transforming equipment. The extent to which the voltage is thus stepped up is, in turn, determined upon economic grounds and depends upon the distance through which the power has to be transmitted from the generating station to the consuming centres and upon the quantity of power involved. The range of step-up transformation may be anywhere from 30,000 volts where the quantity of power is small and the transmission distance short, to 300,000 volts where the quantity of power is large and the distance to be transmitted is considerable. In Canada, the maximum transmission voltage at the moment is 240,000 volts.

After the energy has been stepped up through the transformers to the required voltage, it is necessary to provide (adjacent to the step-up transformers) rather elaborate switching equipment to permit of switching the power from one circuit to another, and for the purpose of localizing faults as well as affording protection against line troubles due to lightning and other causes.

The capital cost, per installed H. P., involved in providing step-up

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transformers and appropriate switching equipment, as outlined above, usually falls within the range of \$8.00 to \$25.00, but here again it must not be assumed that this capital cost per installed H. P., represents the range of capital cost per effective horsepower, because business prudence demands that spare transformer capacity should be provided so that one transformer in a group cannot be considered as effective under all conditions; hence, effective capacity in reality is only considered to be from 75 to 85 per cent. of the installed capacity.

The transmission line proper consists of conductors, whose number and size depend upon the quantity of power involved and the voltage at which it is to be transmitted. The conductors are, in turn, supported upon wooden or steel towers, equipped with insulators and other necessary devices. The choice of the design and resultant cost of transmission towers are also dependent upon the quantity of power required to be transmitted, the voltage, and the distance involved. Prudent business practice endeavours to limit the line losses to a maximum of 10 per cent.

The cost of transmission lines, exclusive of step-up transformers and associated switching equipment, might ordinarily range anywhere from \$5,000 to \$20,000 per circuit-mile. If, for illustration, it be assumed that the transmission distance is 20 miles, and a transmission voltage of 33,000 is used, the capacity would be approximately 15,000 H. P., so that the capital cost in transmitting 15,000 H. P. 20 miles at 33,000 volts would be \$100,000, or \$6.65 per H.P. If, on the other hand, the quantity of power were 200,000 H. P., the transmission distance 200 miles, and the transmission voltage 220,000, the capital cost would be of the order of \$4,000,000, or \$20.00 per H. P. Here, again, business prudence usually demands that a spare circuit be provided so that, in an individual instance, the H. P. cost might run anywhere from 25 to 100 per cent. above the figures just mentioned.

Distribution:

In using the term "distribution," I mean to include the group of functions involved in taking electrical energy from the high-tension switching terminal at the end of the transmission line and delivering it to the individual consumers of the various classes requiring electricity service.

Stated briefly, distribution costs include the provision of: first, substations, whose number and location depend upon the size, character and population density of the distribution area, as well as the extent and character of the power demand; second, appropriate aerial and/or underground conductors, the former carried on poles or towers, and the latter in ducts, so that electrical energy may be speedily and conveniently transferred from one substation to another to meet variations in demand and to insure flexibility; third, appropriate aerial and/or underground primary distribution circuits extending throughout the distribution area; fourth, secondary circuits for servicing individual consumers; fifth, metering equipment usually installed on consumer's premises to measure the power and energy actually used.

The character of any particular distribution system depends upon the kind of service required, which, in turn, depends upon the classes of

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consumers involved and their relation to each other. Consumers may consist of a few industrial power users who individually use relatively large blocks of power at a relatively high voltage; they may be all residential consumers requiring energy for domestic purposes; or the distribution area may comprise a large number of industrial consumers, using considerable blocks of power at relatively high voltage, a considerable number of consumers each using a relatively small quantity of power at a relatively low voltage, a large number of commercial consumers each using electricity services, a large number of householders each using electrical energy for domestic purposes, and, in addition, municipal street lighting may be involved. This latter combination is one which is usually found in large cities.

The capital cost of providing a distribution system for a large city is usually much greater than is commonly believed.

An ordinary substation includes: first, high-tension switching equipment, to transfer energy from the transmission line to the transformer sets, or from one transformer set to another in case of emergency, or for the purpose of repairs, and also to act as protective devices to localize trouble; second, step-down transformers to reduce the voltage for distribution purposes (these step-down transformers are usually equipped with taps which permit of a considerable range of voltage); third, low-tension switching equipment for sectionalizing and localizing faults on transformer banks, and to distribute the electrical energy to the various distribution circuits; fourth, voltage regulators on the low-tension distribution circuits to prevent voltage fluctuations; fifth, current-limiting reactors as a safeguard against short circuits; sixth, a building to house the protective and control equipment, and may also include special equipment for street lighting services.

The capital cost per installed H. P. of substations might range anywhere from \$15 to \$60. Here, also, the installed capacity is by no means the effective capacity.

The connections between substations may run anywhere from \$5,000 to \$500,00 per mile or higher. Distribution circuits may require conductors of sufficient capacity to transmit power at 12,000 volts or even higher to supply large industrial consumers, or at 4,000 or even 2,300 volts to supply small industrial, commercial and residential consumers, and street lighting, if on a multiple system. If a series street lighting system is used, special substation equipment and lighting circuits are required.

In practice, the length of distribution circuits depends upon the nature and size of the load involved. A good general rule is to allow a mile of circuit for each 1,000 volts of distribution voltage; in other words, a 4,000 volt circuit would not ordinarily extend for a greater distance than four miles from the substation.

The type of connection between a distribution circuit and the premises of an industrial consumer using a large block of power must have special consideration and depends upon the individual requirements in each case, but usually such consumers have their own individual substations.

In the case of consumers fed from the 4,000 volt distribution circuits

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who use electrical energy for domestic purposes at 115 volts, it is necessary to run secondary circuits from line transformers located on poles or towers (if aerial), and in manholes (if underground), to individual consumers' premises. These secondary circuits are relatively short and, in densely loaded areas, usually do not exceed 600 feet in length.

Measuring Devices:

As electrical power and energy is usually provided at rates based on peak demand or energy used, or a consideration of both peak demand and energy used, it is necessary that special metering devices be installed on each consumer's premises which will record these factors.

These metering devices are all specially tested under government supervision, and represent a substantial capital item in distribution costs.

From an examination of a considerable number of distribution systems, it would appear that the capital cost falls within the range of \$125 to \$250 per H.P. of peak load, measured at distribution substations.

Various attempts have been made to ascertain the capital cost of distribution per consumer of the various classes. If consumers are all of the same class, and the use of the electricity service is reasonably uniform, this can be easily done, and would be illuminating.

If there are several classes of consumers involved, it is obvious that a good deal of arbitrary division of cost between the various classes of consumers must be resorted to, and resulting averages must be used with considerable caution when applied to a specific case.

In examining reports of the United States Federal Power Commission, I find that capital costs of distribution for commercial light and power services in urban centres falling within the range of 3,000 to 1,000,000 population, are stated to vary between \$100 to \$1,300 per consumer; industrial light and power, between \$450 and \$3,600 per consumer; residential service between \$50 and \$120 per consumer.

Energy Losses:

An effective horsepower at the generating station, if available for a year, represents 6,535 kilowatt-hours of electrical energy. This amount of energy is not available for use by ultimate consumers, because of losses sustained in the process of conveying the energy from the generating station to such consumers. Part of these losses occur in transmission and part in distribution, and in a modern system would range between 15 per cent. to 25 per cent.

Summary "Bare Bones" Capital Cost:

So far, we have been discussing the "bare bones" cost of the inert physical mechanism required for the generation, transmission and distribution of electrical energy. I propose now to summarize those costs in terms of effective H. P. at the premises of the ultimate consumer:

Generation:

Range

Cost per H. P. effective capacity at generating station	\$125	\$250
Cost per H. P. effective capacity at consumer's premises	\$144	\$288

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Transmission:

Cost per H. P. effective capacity at generating station	\$ 8	\$ 25
Cost per H. P. effective capacity at consumer's premises	\$ 10	\$ 30

Distribution

Cost per H. P. effective capacity at consumer's premises	\$125	\$250
Total "bare bones" cost per H. P. effective capacity at consumer's premises	\$279	\$568

Commercial Capital Costs:

In addition to the "bare bones" capital cost of the inert physical mechanism which we have been examining up to the present, there are two other factors of a commercial, rather than a physical nature, which involve capital costs and for which adequate provision must be made.

The first of these factors is "working capital," which is made up of the necessary inventories of material which must always be on hand for repairs and replacements, and the actual cash necessary to balance the time lag between outgoing expenses and incoming revenues. Obviously, the size of the inventory must bear some relation to the capital cost of the physical property requiring maintenance and repairs, whereas the cash requirements to balance the time lag between outgoing expenses and incoming revenues must bear some relation to expenses.

The second of these commercial factors is that which embraces the capital cost of transforming the "bare bones" inert physical mechanism into a going concern, or, to use electrical parlance, the cost of synchronizing the inert physical mechanism with consumer use on a commercial basis.

That these two factors represent real and tangible capital costs, for which provision must be made, has been amply demonstrated in practice, and failure to provide for them leads inevitably to financial difficulties.

Working capital might be 5 per cent. or more of the annual outgo, and going concern cost might be 10 per cent. or more of the "bare bones" physical cost.

Annual Charges:

We have considered the principal factors which are usually present to a greater or lesser degree in individual cases, and which affect the capital cost of providing a hydro-electric power system comprising a physical mechanism consisting of generating, transmission and distribution facilities synchronized with consumer use of a commercial basis to produce an effective going concern; we have also considered the range of total capital cost within which it may be said that such going concerns have economic merit.

We will next consider briefly the nature and relative magnitude of those annual charges which are necessary to keep such a going concern in satisfactory working order, so that it may render efficient service. It is not proposed that these annual charges should be analyzed in detail, as, in order to do so, it would be necessary either to consider the actual charges in relation to a specific going concern of the character mentioned, or to take a hypothetical case. All it is proposed to do in this instance is to indicate the range within which these annual charges might fall in terms of what we

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will call the "expense dollar"; in other words, to indicate the proportion of the "expense dollar" which would be utilized in meeting these annual charges. It is proposed to divide the annual charges into four groups, as follows:—

1. Operation, maintenance and administration charges;
2. Taxes (which include amounts paid to public authorities of various kinds);
3. Depreciation charges;
4. Capital servicing charges.

Operation, Maintenance and Administration Charges:

These annual charges cover: first, the cost of maintaining and operating the physical property which has already been described (naturally, this physical property must be maintained in perfect physical condition at all times, so that it may be operated to provide adequate and uninterrupted service); second, the cost of a large variety of other features which relate more to the producer-consumer relationship than to the physical property itself, such as are involved in the efforts made to provide the consumer with the service he requires, in determining the basis upon which the service is to be rendered, and the extent to which use is made of the service; third, those expenses which are commonly included under administration.

To give you an illustration, I might mention a specific item which represents a considerable factor in this general group of annual charges, and that is the expense involved in reading customers' meters (once every month, or once every two months, as the case may be), and in billing and collecting the amount due for electricity service, which costs about \$3.00 per consumer per annum.

All these factors, taken together, might be expected to result in using up 16c to 28c of the "expense dollar."

Taxes:

Under the heading of taxes, for the purpose of this discussion, I am including all those items of whatever nature the going concern has to pay to public authorities of all kinds in the ordinary course of business. These annual charges naturally vary within a considerable range in individual cases, but, by and large, one would expect that they would use up something of the order of 10c to 12c of the "expense dollar."

Depreciation:

As a considerable part of the capital involved in providing the going concern described consists of equipment which is supposed to have a considerable service life (which, in practice, is actually, although imperceptibly, decreasing annually), it is usually considered prudent practice to include in the annual charges an amount which might reasonably be expected to represent the annual loss in the service life. I do not propose to engage in any discussion on the subject of depreciation as such, or to argue for or against one or other of the variety of methods which might be used for the purpose of accounting for such loss of service life, but I do make the emphatic statement that it is something for which provision should be made

COST AND MANAGEMENT

in the accounts representing the annual charges, and I would venture to say that in the "expense dollar" it might run anywhere from 18c to 21c.

Servicing Capital:

The capital required for a going concern of the magnitude referred to is, naturally, obtained from the investing public, who must be, or have been, persuaded to risk their capital in the enterprise. Such capital cannot be induced to incur the risk of investment in a going concern of this character unless the investing public are confident that they will receive a reasonable annual amount upon their investment in the first place, and unless they are reasonably confident that the capital will be maintained intact and may be realized upon in the security markets should it be necessary for them to liquidate their securities. It is the annual charges which have to be paid to the investing public who risk their money in enterprises of this kind to which I refer under the heading of "servicing capital."

I do not propose to engage in a discussion of the rate of return to which an investor may be entitled, but merely to say that the individual investor, himself, usually decides at what rate he will risk his capital, having regard to the general financial conditions obtaining at the time he has the capital available for investment.

Servicing capital might involve anywhere from 44c to 51c of the "expense dollar."

Cost of Power in Industry:

It might be of interest to you to know the influence of electricity costs upon manufacturing. In order to illustrate this point, I have consulted statistical information available in the 1936 issue of the "Canada Year Book," and I find that the cost of electricity, in terms of percentage of the gross value of the undermentioned groups of manufactured products in 1933, was as follows:

	Percent
Vegetable products696
Animal products508
Textiles and textile products	1.024
Wood and wood products	4.026
Iron and its products	2.133
Non-ferrous metal products	2.133
Non-metallic mineral products	1.461
Chemicals and chemical products	1.97
Miscellaneous manufactures	1.534

Comparison of Cost of Electricity for Domestic Uses with Expenditures for Other Purposes:

I think everybody realizes that electricity service constitutes so intimate and so important a part in our every day life that we would hardly know how to get along without it; consequently, it would seem germane to the discussion this evening if I were to repeat what I have said on another occasion, which is as follows:

"I wonder if the public of Canada realize how much electric service contributes to the convenience and comfort of every-day life, and how small

HYDRO ELECTRIC POWER COSTS

the cost of such service actually is in comparison with the sums they expend on other services.

"As an example, in 1933, the 1,371,806 domestic electricity customers scattered throughout the Dominion of Canada paid \$35,953,823 for electricity service. Yet, in that year they paid, all told:

Slightly more for riding on electric railways throughout Canada;
1½ times as much for telephone service;
1.1 times as much for amusements in theatres and movies;
1½ times as much for amusement and recreation of all kinds;
1.3 times as much for taxes on motor vehicles;
4.1 times as much for education;
Seven tenths as much on race track betting;
Twice as much for liquor purchased through the various liquor commissions alone;
Almost 8 times as much in municipal taxation;
Over 7 times as much in Dominion taxation;
75/100ths as much in Provincial taxation (exclusive of motor vehicle and gasoline taxes)."

Conclusion:

In order to give you a bird's-eye view in a pictorial manner of a going concern of the character which I have described to you tonight, arrangements have been made with the Associated Screen News to show you a moving picture entitled "More Power To You," which, I think, will illustrate the physical characteristics as well as the producer-consumer relationship existing in a going concern of the nature I have described.

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FORUM SECTION

In the October issue, we published a request for information regarding the issue of invoices with packaged goods, and publish below two replies received from members. The replies received regarding methods of inventory valuation were so numerous and lengthy as to preclude publication here, but these replies have been passed on to the company making enquiries. Further replies are solicited regarding the matter of issuing invoices along with packaged goods.

To The Editor,—

Regarding the October issue, Page 252, the enquiry from Company A.: We handle about 200,000 invoices per year, practically all of which are delivered in their final form along with the delivery of the goods. This represents roughly 750 invoices per day. Our method is fast, accurate, involves very little cost and gives high speed of delivery. Our volume 500,000 packages averaging \$1,000,000.00.

Should your enquiry come from Montreal, I would be more than pleased to be put in touch with the enquirer, so that I could show in detail the working of our system; this would be very much more practical than trying to explain in the form of a letter.

However, a very brief outline is somewhat as follows:—

1. Salesmen during the day take orders, the name, address, etc., and the quantity of packages and the price are entered in pencil on a triplicate invoice form.
2. In the evening the salesmen present their day's orders to the Credit department for approval or to be marked C.O.D., etc., the invoices are then sent to the shipping department.
3. Either in the evening or very early in the morning, the shipping department prepare the various loads on the shipping room floor. It is to be remarked at this point that our packages are not of standard weight; consequently, the shipping department has to enter in the weights on the invoice. As soon as each load is complete, the invoices are returned to the office, where four girls make the necessary extensions and additions. During this time, the goods are loaded on the delivery trucks.) The second or intermediate copy is torn out and retained in the office. It rarely takes more than 40 minutes for the girls to extend 5 to 600 invoices.
4. The first and third copies are returned to the driver. The first copy is left with the client, after all necessary calculations have been made on both copies by the driver for cash discounts, returnable containers, etc.
5. During the day, the girls use the second copy for making out a Sales Journal sheet which, however, can only proceed as far as the debits.
6. When the driver returns, whether the same day, or several days later, if deliveries are in the country, he then turns in his third copies, which are checked against the second copies to verify that all invoices are returned, and the Sales Journal Sheet is completed from the additional information incorporated by the drivers on the third copy.

FORUM SECTION

The foregoing is very brief and omits many minor details. Not knowing exactly what line of goods are in question and how orders and shipments are handled, it is impossible to say whether this scheme as it now operates would fit your enquirer's needs. But, I venture to believe that the broad outlines of the scheme can be rearranged or adapted to almost any set of conditions, where it becomes necessary to send the invoices at the same time as the goods are delivered.

This letter is in duplicate, so that you may retain a copy.

Two invoices are enclosed which are self explanatory.

It is to be hoped that this may be of some help. If further details or suggestions are required, they will be forthcoming on request.

—COMPANY "C."

To The Editor,—

1. Order is assembled.
2. Order is routed.
3. "A"—For out of City shipments: Checked and packed for weight and case charges (the last package is left unsealed so as to insert invoice when ready). Order sent to be invoiced.

"B"—For City shipments: Checked and packed. Order sent to be invoiced. Invoice attached to delivery receipt form.

Note:—All orders which call for invoice with goods are prepared in advance to allow time for billing and are always ready on time, with exception of hand to mouth last minute orders.

—COMPANY "D."

BUDGETARY CONTROL

To The Editor,—

We are a Manufacturing Firm, at present contemplating the installation of a complete budgetary control; the production budget being based directly upon the sales budget, with necessary allowance for Inventories. We would very much like an outline in detail, from any member, the method of converting the sales budget (which is inclined to be more or less general) into the production budget and production schedules (which must be very definite).

Your very truly,

—COMPANY "E."

No doubt, many of our members are in a position to, and would wish to, give information on the foregoing question. We reiterate that, in no case, will the name of the firm be given, unless permission is voluntarily given. May we ask that information in connection with this question be mailed to the editor as quickly as possible, in order that replies may be published in the next issue of Cost and Management?—Editor.

Chapter Notes

Montreal Chapter.

There was quite a good attendance at the Chapter meeting on October 29th, and those present were well rewarded for their attendance, for they heard a fine talk on "Power Costs" by Mr. R. A. C. Henry B.Sc., General Manager of the Beauharnois Light, Heat & Power Co., Ltd. As Mr. Henry's talk is produced elsewhere in this issue, no good purpose can be served by going into details in these notes. Suffice it is to say however, that the meeting was a most enjoyable one, and that it is to be hoped that Mr. Henry will again address members of the Chapter on some future occasion. The speaker at the meeting on November 12th was Professor R. DeL. French, B.Sc., C.E., M.A., S.C.E., McGill University, and his address on "The Time Factor in Highway Design" was particularly interesting. Unfortunately, the attendance was not up to the usual standard, but those who did hear the talk pronounced it both interesting and valuable. Many questions were asked at the close, and few, if any, of those who were present, went away without having added considerable knowledge in regard to highway engineering. At this meeting also, R. Dawson, Secretary-Manager of the Society, attended and addressed the members on "The Future of Our Society." Mr. Dawson was very optimistic concerning the future and urged the members to give all they could toward making the Society successful.

Some of the more prominent members of the Chapter were unable to be present, being "delayed" at Detroit. There was a feeling, however, that the bunch had actually returned from Detroit, and when the Secretary-Manager left for his hotel, a movement was on foot to organize a search party for the missing members.

The next meeting of the Chapter will be on Friday, November 26th, when Mr. A. S. Keiller, C.G.A., A.C.I.S., of the Sherwin Williams Co., Ltd., will speak on "Costs in the Paint Industry." Mr. Keiller is recognized as a fine speaker who knows his subject, and it is hoped that a large number of members will be on hand to hear him.

Toronto Chapter.

Only a small attendance greeted Mr. Herbert C. Powell, Statistician for the Toronto Hydro Electric System, when he spoke before the Toronto Chapter on November 2nd on "Business Forecasting," but those who did attend learned much. Mr. Powell's talk was most interesting, and it is hoped to publish a resume of his address in "Cost and Management." Certainly those who heard it were loud in their praises.

The next meeting of the Chapter will be a joint affair with the Hamilton Chapter, and will be held in Hamilton. Mr. Chester S. Walters, Controller of Finances for the Ontario Provincial Government, will speak on "The Cost of Government," and it is expected that a large crowd will attend from Toronto. The Hamilton Chapter will return the visit on January 25th, when Mr. Paul Kellogg of Montreal will speak in Toronto.

NEW MEMBERS

It is likely that the Toronto members will proceed to Hamilton in a special coach, and members are urged not to miss this event of the season.

Hamilton Chapter.

Thirty-eight members of the Hamilton Chapter journeyed to Kitchener on November 3rd, to assist in the formation of a new Kitchener Chapter of the Society. This was a regular Hamilton Chapter meeting transferred to Kitchener, and the members certainly co-operated whole-heartedly with the directors in a real effort to put this meeting over. Thirty members chartered a bus, and had a grand time on the trip to and from Kitchener.

The total attendance at this meeting was seventy-nine, and Mr. H. M. Hetherington, who was the speaker, gave a fine talk on "Forecasting Costs." Mr. Hetherington's address will, in all probability, be published in these columns at a later date, but it can be said here that he received a most attentive hearing and the questions at the close were intelligent and interesting.

On November 24th, the Hamilton and Toronto Chapters will hold a joint meeting at the Wentworth Arms Hotel, Hamilton, when Mr. C. S. Walters, Controller of Finances for the Ontario Government, will speak on "The Cost of Government," and it is expected that this will prove to be a real banner meeting. Mr. Walters is a former Mayor of the City of Hamilton, and the present incumbent of that office will introduce him to the gathering.

New Members

Montreal Chapter.

- G. A. Blundell, Tooke Bros., Ltd., Montreal.
- J. E. Maheu, C.A., C.P.A., Maheu & Noel, Montreal.
- A. P. Beaulieu, Atlantic Sugar Refineries, Ltd., Montreal.
- P. W. Sims, Price Bros. & Co., Ltd., Quebec.
- C. H. Robitaille, Ando-Canadian Pulp & Paper Co., Ltd., Quebec.
- G. La France, Dominion Sport Service, Montreal.

Toronto Chapter.

- V. A. Kerr, Colgate, Palmolive-Peet Co., Ltd., Toronto.
- N. C. McFarlane, W. G. Patrick & Co., Ltd., Toronto.
- C. A. L. Poudrier, Anderson Furniture Factory, Vancouver, B.C.

Hamilton Chapter.

- W. C. Sparham, International Harvester Co., Ltd., Hamilton.
- D. R. Briggs, Bell Thread Co., Ltd., Hamilton.
- N. Allen, The Aerovox Co. of Canada, Ltd., Hamilton.
- Alex Brown, Long & Marshall, Hamilton.
- Geo. Greenhough, Accounting Dept., City Hall, Hamilton.
- A. R. Clarke, Wallace Barnes Co., Ltd., Hamilton.
- H. C. Lee, McLaren's, Ltd., Hamilton.

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Kitchener Chapter.

D. C. Seebach, The B. F. Goodrich Rubber Co., Ltd., Kitchener.
C. R. Kidner, C. A. Savage Shoe Co., Ltd., Preston, Ont.
J. Henderson, Newlands & Co., Ltd., Galt, Ont.
E. J. Nicholson, Sheldon's Limited, Galt, Ont.
E. Tailby, C.P.A., Kitchener, Ont.
A. N. Farries, The Breithaupt Leather Co., Ltd., Kitchener.
H. D. Huber, Canadian Blower & Forge Co., Ltd., Kitchener.
H. S. Ireland, Canadian General Rubber Co., Ltd., Galt. (Transferred from Hamilton Chapter.)
W. I. Jardine, Clare Bros. Co., Ltd., Preston. (Transferred from Hamilton Chapter.)

Business Forecasting

Business Forecasting was the subject of an address by Herbert C. Powell, statistician for the Toronto Hydro Electric System at a meeting of the Toronto Chapter, on November 2nd last. Mr. Powell, who commenced his study of business forecasting with Dow, Jones & Company, New York City, away back in 1906, has made an extensive study of the various methods used in such forecasting, and, while no verbatim report of his address is available for publication, the following resume should prove of real interest.

Mr. Powell stated that a business forecaster was very much like the captain of an ocean-going steamship, a military general, or the captain of a rugby team. The steamship captain is relied upon to bring his ship safely into port, despite storms, etc.; therefore, a past knowledge of storms, their causes and possible consequences, proves most valuable to the captain. A successful military general studies tactics, manouevres, and acquires a broad background of science and human nature. The captain of a rugby team, to be successful, must know each and every player and his ability to execute plays under all conditions; he must know, too, each and every play used by his team, the reason for each play, and its possible result.

Just so, a business forecaster; to be a success, he must make an exhaustive study of history, business methods, economics, human nature—and, even then, many unpredictable events, such as wars, earthquakes, and tidal waves will upset his forecasts.

Turning to trends, Mr. Powell stated that he had found it practically impossible to enjoy any degree of accuracy in predicting from the short trend standpoint, and, consequently, he studied from the longer terms. He said it might come as a shock to his audience to learn that the system of double-entry bookkeeping was in vogue as far back as 2,000 B.C.

Using a chart prepared by A. E. Pierce & Co., which showed commodity price trends for a 100-year period, the speaker pointed out that wholesale prices were at a peak back in 1865, and that they went down for 30 years and then back up for a 20-year period. A peak will be reached again in 1975, he said, and the next low point will come in 1951.

BUSINESS FORECASTING

Pointing to another chart, prepared by the Ontario Department of Agriculture, he showed where wheat prices were down 45 cents a bushel in 1932, the lowest point since 1891.

Speaking of depressions, Mr. Powell stated that they come and go with extreme regularity, and that, in each and every case, they fulfill certain laws, just as they have been doing for hundreds of years. In a 55-year commodity price swing, he said, there are always three major depressions.

A knowledge of astronomy was necessary for business forecasters, Mr. Powell continued, because both the moon and sun have a distinct effect on business. Regarding sun spots, he said they seemed to be like great, continuous explosions, 200 to 80,000 miles in diameter, travelling across the face of the sun, and were measured by a system of index numbers. They range from a low of 64 to a high of 1999, with the average around 130.

High sun spot index numbers are always productive of heavy rainfall, and low numbers, low rainfall, he pointed out, in speaking of how sun spots could effect the Canadian West. He said that the sun's temperature rises and falls regularly, and that it is possible now to forecast the sun's future activities just as easily as tidal movements are predicted.

In business forecasting, four main "laws" must be considered, Mr. Powell stated. Firstly, the Law of Recurring Sequences; secondly, the Law of Starting Sequences; thirdly, the Law of Popularity; and, lastly, the Law of Saturation.

Taking the first "Law," while the distance between the peaks of sequences is not always the same, sequences do recur over and over again, he said.

In explaining the Law of Starting Sequences, Mr. Powell used death as his example. When a man dies a natural death, the sequences start, thusly: First, the doctor is called; second, the man's relatives are informed; third, the undertaker is notified; fourth, cemetery arrangements are made. And, in practically every case, these sequences are the same, although the time between each sequence may vary.

Regarding the Law of Popularity, the speaker picked on the bicycle for his example. Invented in 1770, the first model was not built until 1870, that period being known as the "period of incubation." Then comes the period of development, and the period of popularity, at which time competition breaks into the picture. Incidentally, Mr. Powell said, the period of profit, before competition ruined it, was very short.

The Law of Saturation, the speaker said, was easily understandable. It simply means that period which follows, first, the competition circle, and, later, the waning of interest, when the markets of the world are over-taxed.

Five main events must be watched and studied carefully by the would-be business forecaster, Mr. Powell stated. He listed them, as follows:

- (a) Political events,
- (b) Tariffs,
- (c) Taxation,

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- (d) Foreign exchange,
- (e) Storms, floods, wars, etc.

By way of explanation, the speaker, in citing the first event, pointed out that President Roosevelt's action in raising the price of gold had a most important effect on Canada, and such an act must be taken into consideration by a forecaster.

Statistical research must also be studied if the forecaster would keep up with world events, he said, and he outlined eight fields of study for the student of forecasting. These were as follows: (1) Technology; (2) Management; (3) Markets; (4) Monetary; (5) Political; (6) Social; (7) Historical; (8) Astronomical.

Managerial "stallitis" was the greatest drawback to business to-day, Mr. Powell continued. A successful manager must be ready to make wise decisions quickly, but few of them have this ability these days.

Confidence and trust are the basis of trade throughout the world, he warned. He set for each of his listeners two main objectives: First, to make himself the best man in his position, and, second, to make others in that line better than himself. He urged all present to adopt these objectives as their own.

Presidential Address

AT THE SIXTEENTH NATIONAL COST CONFERENCE THE INSTITUTE OF COST AND WORKS ACCOUNTANTS

HELD IN LONDON, ENG., SEPT. 30th TO OCT. 2nd, 1937

(Reprinted by kind permission of The Institute of Cost and Works Accountants.)

Each year, it is the custom for the President of this Institute to express his views on matters which appear to him to bear on the work of the members. These views are the result of his personal reactions to happenings generally, as observed and absorbed by him in his privileged position.

Simile.

Just as Nature has her seasons, the industrial world has its cycles of varying productivity. These variations of productivity with their ever-changing consequences are bound to have their effect on the cost problem.

The severity and fastnesses of Winter are necessary for the freshness and awakening of Spring; Spring's awakening leads to the geniality and growth of Summer; Summer culminates in the abundance and reward of Autumn; and Autumn's harvest provides the safeguard for the Winter.

Business Seasons or Cycles.

For the purpose of illustrating how the cost problem has changed, and may be expected to change, I have selected sharply contrasting periods.

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They are the years 1906-13, which may be taken as representing Autumn; 1930-33, Winter; 136-37, Spring; and 1938-?, Summer.

Prevailing Background Conditions.

1906-13. This period was one of widely expanding markets, both at home and abroad. Great Britain was to the forefront in manufacture; regular and profitable business was obtainable without undue effort. Wages were low and hours long, and, although this era could be described as a machine age, there was little of what we now call "mechanisation." The typical business unit of the period was the small firm—the "family business" where the proprietor was in direct contact with his employees. The era of combines had not yet arrived, because little, if anything, was to be gained financially by combining. This may be accounted for, firstly by there being plenty of business at good profits and, therefore, no urge to amalgamate for the purpose of raising efficiency, reducing costs, or converting losses into possible profits; and secondly, by overheads being comparatively low, little supervision being required, and there being a minimum of productive planning, market research, advertising campaigns, and overlapping of administrative staffs.

At this stage the cost problem, as we now know it, did not exist in the minds of many employers: hard bargaining for material purchase, and very often intense resistance to wage increases, were the chief tools of cost control; here and there it might be taken seriously, but, generally speaking, rule of thumb methods prevailed.

It was simple to make an approximate estimate of the direct labour and material, and x per cent. would be considered "about right" for overheads, with "something" added for profit. There were no details, and it was almost impossible to check results against actual costs. At the end of the trading year, hardly one firm in a thousand could show how much or how little the various departments or contracts had contributed to the balance of the Trading Account, but, as the balance was usually a substantial profit, this omission was accepted as of no consequence.

1930-33. For some years, the full effects of the disturbance caused by the Great War were not wholly realised, but, by 1931—after the boom and over-spending of 1929, and the immediately preceding years—the world was in the throes of a depression of unusual severity. World markets were seriously contracted, owing, in part, to restrictions of purchasing power brought about by the burden of war debts, reparations, and unstable currencies. There was also a world-wide wave of economic nationalism, which resulted in the setting up in all countries of tariff barriers, quotas, and other hindrances to the free flow of trade. Concurrently, there was the rapid industrial rise of Japan, which, with cheap labour costs combined with export currency policy, captured much of the Eastern trade. Wages were now higher, and hours shorter, than in pre-war days. In the industrial world there had been a great increase in "mechanisation"—and, therefore, in productive capacity—helped by the impulse of the War effort.

There was a widespread movement towards combines and amalgamations, because the lowering of costs was imperative and, as mechanisation (with its diversion—not elimination—of skill) and the intensive search for markets had led to higher relative overhead costs as compared with labour

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and materials, amalgamation with its possible heavy reductions in overhead (and elimination of competition) offered the likeliest chance of cost reductions.

There as now a real cost problem! Prices had to be cut to the lowest possible limit; and, to do this, without adequate and detailed knowledge of costs, was dangerous. The compilation of costs was by now much more intricate, as overhead had, in general, become the preponderating element, and its correct and equitable distribution was a problem of great difficulty. Never before had the application of correct cost information been so important. Questions of taking orders at a profit were very often replaced by questions of taking orders to reduce the total loss. Something more than "Cost on an out-of-pocket expense basis" meant at least a contribution to general overhead expenses, which appeared to be much better than closing down. There was a great impetus towards the development of budgetary control, which offered a means of strictly controlling expenditure within pre-determined limits and of relating expenditure to varying levels of activity; there was also a parallel move towards the adoption of standard costs and a more highly developed technique of scientific cost accounting.

1936-37. Present conditions now show a gradual but widespread recovery. There is an upward trend in commodity prices; markets show signs of expansion; and there is a movement towards relaxation of trade barriers. What might otherwise prove a healthy recovery is, however, being seriously disturbed by the world-wide diversion of effort to the production of armaments, which is causing serious shortage of certain products (for example—steel), and of certain types of skilled labour, together with dislocation of production and delivery programmes, and rises in the prices of all manner of goods. This rise in prices is partly psychological, dictated by the expediency of increasing prices whilst there is an opportunity, or because to keep them down at a time of rising prices might give rise to difficulties when prices begin to fall. There is a definite movement towards still shorter hours (the five-day weeks), and an increasing tendency towards more combines, as the advantages they offer of reduced costs and increased profits become more evident.

Perhaps there is not the same desperate need attached to the cost problem as when the slump was at its worst: but there is a growing realisation of the benefit of scientific costing, even when business and profits are good—results (whether tangible or intangible) can always be improved by the proper application of cost consciousness—and that more attention to costing technique in prosperous times means greater possibilities of weathering storms. The well-managed firm will undoubtedly stand the strain best. Budgetary control and standard costs are the rule, and there is an increasing conviction of the necessity for costing all functions and not production only.

Rising prices of materials constitute a problem which it is difficult to assess. Quotations for forward delivery contain a cover of some kind—either an increase in the price, which has been included in the quotation to provide for the possibility of still further increases in cost over and above those known to date, or else the quotation contains a sliding scale

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clause. There are here all the symptoms of prices and costs chasing each other up the vicious spiral until a crash occurs.

As Cost Accountants, we have a duty to perform in helping to improve the present (sometimes haphazard) methods of price fixing; and prices ought not to rise regardless of cost. A rise of 10 per cent. in the material element of cost is not in itself a reason why the selling price should be raised by 10 per cent.; if both material and wage elements rise by 10 per cent., that again is not a sufficient reason!!

There was need in the period of 1930-33, which I have designated "Winter," for a thorough understanding of the basis on which "costs on an out-of-pocket expense" level was approached and applied in the interests of getting the wheels of industry turning; likewise there is to-day need for understanding the basis on which standard replacement cost level should be applied in the interests of keeping the wheels of industry turning smoothly without over-revving and running themselves quickly to destruction. It will not be to anyone's credit if, by forcing and plucking the immature product in Spring, they find themselves without products to ripen in the Summer, and without a harvest in Autumn to safeguard the Winter.

1938—?. There is a likelihood of further gradual recovery; but it is difficult to forecast the effect of the inevitable slackening down of the armaments programme and the consequent fall in prices, diminished employment, and recession of business generally. Economists predict another slump. There should, however, in the next few years, be a definite clarification of the international outlook, one way or another. If some, really constructive, effort could be made to remove some or all of the possible causes of war, the resultant easing of tension should more than counter-balance the effects of a slump—eventually, at any rate. The future should certainly see some substantial relaxation of trade restrictions of all kinds. Industry will probably have to meet the cost of the five-day week, holidays with pay, and the increased cost of the social services. The tendency will be still further towards large scale units, resulting in the diminishing influence of the small business. The increasing trend towards semi-public control of policy of certain key industries will also affect the cost problem.

The important developments of the costing problem which appear probable are:—

- (a) Evolution of uniform methods of costing or a substantial degree of standardisation of the composition of cost elements within an industry or industries in which the basic conditions are similar;
- (b) Application of costing to its fullest extent to Government, Municipal, and Public Boards;
- (c) The ability to prove the accuracy of all elements of cost at all stages.

Conclusion re Seasons.

Nature's Seasons are regular and inevitable in their sequence. Business Seasons are irregular and vary in productivity and returns, but, whilst their rotation is inevitable, extreme variability can be beneficially controlled by human actions.

Outlook.

The outlook on the proportion of time which should be devoted to

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work and leisure has, in this country at least, changed and will continue to change; but, whereas in the past leisure may have been interpreted as "doing optionally what one liked regardless of recreative effect," present interpretation might be "doing only those things which are recreative and beneficial in effect, but the order in which they are done is optional."

Broadly, it is now accepted that the principle of "all work for the many and all leisure for the few" is wrong, morally, socially, and economically; that all leisure (whether enforced or optional) for the many and work only for the few, also is wrong; that the working of children and others for long hours in unhealthy conditions, without regard to life or limb, is wrong; and that a reasonable amount of pay for a reasonable amount of work is the requisite of all; that gainful employment for wages and/or profit-making for all must always remain as the chief impulse of everyone, provided it is arranged according to well-conceived moral, social, and economic rules. To run counter to these rules will not, in the long run, pay: to work and play according to these rules, will pay.

Message.

The Cost Accountant, from his favourable vantage point, should, with alertness and skill, focus the searchlight of cost knowledge on to every aspect of industrial activity, so that the standard of geniality, perception, and progress is being continually raised to a higher level.

By so doing, he will be helping Management to attain a moral ideal with an economic result.

Uniform Accounting Methods

Last month, we published a short article on "Standardization," and we are pleased to announce that the reaction in this connection has been entirely satisfactory. Most Cost Accountants and, indeed, most business men, with whom we have discussed this matter appear to be entirely in favor of something being done along these lines. We recently heard a talk on "Cost and Industrial Accounting," in which the speaker took time out to state that, in his opinion, standardization of cost and accounting methods was something very sadly needed. But, no one seems to want to do anything about it, or, at least, no person or persons seem to desire to take the lead. It seems to the writer that the Canadian Society of Cost Accountants and Industrial Engineers should take the lead in this matter and, in doing so, this Society would perform a real public service. This something which all Chapters would do well to discuss immediately, for in each locality there are industries peculiar to such a locality, and where a start could be made. Chapter programs are, more or less, complete in each Chapter, but perhaps the various boards of directors could make a start in this matter and bring the matter up for discussion at the conclusion of question periods. In this issue, we publish the report of the President of the Institute of Cost and Works Accountants in England, on the occasion of the sixteenth annual Cost Conference, and it will be noticed that this gentleman makes reference to the same need in England. Con-

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tinual talking without action will not do much good, but discussions, with an object in view will, and, in any case, the ground work could be done for future action, and we mean the immediate future.

There are few accountants or cost accountants who do not realize that, in many instances, antiquated methods, expensive methods, and methods which certainly do not give the results claimed for them are in vogue in many instances, and that if uniform methods could be presented and adopted, business generally would benefit greatly. The chief stumbling block seems to be the lack of initiative (which should be taken by this Society), and the general timidity of business to sit down with competitors, fearful lest they "give away" some secret or supposed secret. In bringing this matter to the fore, let it be said that there is no thought of disclosing any secrets, but simply an effort to put into practice some uniformity of methods employed in cost finding and in accounting in kindred industries. It may be, in fact, it undoubtedly will be, that if such uniformity were adopted in similar industries, some of us would have to forget all about some of our pet theories and practices for the good of business generally.

Perhaps we are not ready for that, but it is the studied opinion of this writer that, at any rate, the possibility of putting into effect such uniformity of methods should be explored and that quickly.

Those of us who are engaged in positions of authority should not allow thoughts of discontinuing our own pet methods to stand in the way of a real study of this possibility. Surely, if these pet methods are good, really good, they can stand the light of day, and the result may be that such methods will be adopted uniformly by those engaged in similar industries. Surely there is something to be gained by contributing to the general good, whether of industry or anything else. Then, why should we not start this thing immediately? We are in the best position of anyone, not only to advocate such uniformity of methods, but to show exactly what these uniform methods should be, and how they should be put into practice; but, once again, let us say that simply talk without action will not do any good at all. Action is needed, and, if the need is nearly as great as we think it is, then immediate action is very necessary.

There are those who will agree, and those who will disagree, on this subject naturally, but perhaps a start could be made best if those interested, whether they agree or disagree with this article and the need for the uniformity of methods we have written about, would write to the editor and state their view.

Correspondence

Many members have certain criticism to offer in connection with the publication of "Cost and Management." Some, but very few, write to us and state what, if anything, they consider wrong; others, again they are few, write commending us for some article appearing in this publication, or on the general appearance and style of the magazine. None of these letters, up to now, have been published, but we do publish below a letter received

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from a member, in order to show that we can "take it," and that, rather than resenting such criticism, we welcome it.

Letters received from readers of our publication are welcomed, because that is the only means of knowing whether or not this magazine meets with your approval. So write and let us know what you think of it. Don't hesitate to criticise if you think it necessary.

Below, we publish a letter received regarding our use of the word "Federal," rather than "Dominion," in relating to the government at Ottawa. This letter gives one a new angle on something we have given little thought hitherto, and we gladly publish it.—Editor.

To The Editor,—

I would like to bring to the attention of yourself and your readers what appears to me to be a misuse of the word "Federal." In the October issue of "Cost and Management," reference is made to the "Federal Government" and to the "Federal Customs at Ottawa." In published statements of accounts, one sometimes reads "Reserve for Federal Income Taxes."

I submit that the use of the word "Federal" is incorrect, since we live in the Dominion of Canada, and the government at Ottawa is the "Dominion Government," and not a Federal Government. The misuse of this word seems to me to be a reflection, both upon the user and upon our fair Dominion.

Yours truly,

—"JACK CANUCK."

Appreciation

It will be remembered that, at the opening meeting of the Montreal Chapter, when the speech was broadcast, the officers of the Montreal Chapter took the opportunity to broadcast greetings to our President, Mr. George T. Bowden of Montreal, who is ill at home. The Hamilton Chapter, at its opening meeting, wired greetings and best wishes for a quick and complete recovery to Mr. Bowden. We believe, also, that the Toronto Chapter sent greetings and best wishes; but, in any case, the point is that these greetings were very much appreciated by both Mr. and Mrs. Bowden.

We publish below letters received by Mr. MacNiece, Secretary of the Montreal Chapter, and also by the Secretary of the Hamilton Chapter, voicing the appreciation, and, in reading them, it seems that, perhaps, as a Society, we may have overlooked a phase of activity which we would do well to remember. That is, the matter of looking up members who are on the sick list, and to whom a cheery greeting is often the means of doing considerable good. Certainly, it is never lost, and while our Society is primarily a scientific one, in the sense that we deal with the science of accounting and business management, we cannot overlook altogether the social side of our activities, whether such activities be centered around the visiting of the sick, the placing of a member in employment, or smokers and ladies' nights, such as the Toronto and Hamilton Chapters tried last year.

APPRECIATION

The letters from Mrs. Bowden follow:

To Mr. MacNiece,—

Dear Mr. MacNiece: I really do not know how to thank you sufficiently for the lovely flowers you sent to my husband last evening, symbolizing the special thought of the members of the Montreal Chapter, at the hour of their opening dinner, and their sincere wishes for recovery. This kind act touched him deeply, and I want you to know he listened most intently to the broadcast. Indeed, I think he rather liked the message which came over the air to him; especially, if I may judge by the happy look on his face. Surely, all the kind wishes of his many friends will help him on the road to health, and we shall always think of the Canadian Society of Cost Accountants as being instrumental in helping him forget that he has been so long away from his former activities.

He wishes me to ask you to convey to Mr. Loiselle his best wishes for a successful year as chairman.

Thanking you again for all your kindness,

I am, yours sincerely,

—AMELIA ROBERTSON BOWDEN.

To Mr. Dawson,—

Dear Mr. Dawson: My husband wishes me to thank you sincerely for the message received a few minutes ago from the Hamilton Chapter of the Canadian Society of Cost Accountants and Industrial Engineers, upon the occasion of their opening meeting. If I may judge by the many kindnesses shown my husband by this Society, surely there must be a wonderful bond of friendship among its members, and I do hope he will recover his health in such measure as will permit of his again participating in the work of the Society. Its success lies very close to his heart.

Again thanking the Hamilton Chapter for their kind wishes,

Yours sincerely,

—AMELIA ROBERTSON BOWDEN.

All we can do is to say to Mr. and Mrs. Bowden a sincere "thank you" for these words of appreciation. Any little acts of kindness, and they have been little, which this Society has been able to do for Mr. Bowden has been more than repaid by the two letters published above. Mr. Bowden is our President. For many years he has been an earnest worker for the Society. He has been a source of inspiration to many of our members. We sincerely deplore his continued illness, not alone because we have temporarily lost such an earnest worker, and about all we can say in addition is to once more reiterate, on behalf of every member of the Society, and especially those who have been privileged to know Mr. Bowden, is: Best wishes for a speedy and a complete recovery. We're all pulling for you, George!



George T. Bowden, M.C.I., President of The Canadian Society of Cost Accountants and Industrial Engineers. Mr. Bowden is a Scotsman who came to this country at the age of eleven-twelve years and, during his early youth was employed in Montreal in various capacities. For the past thirty-five years he has been in the employ of the Steel Company of Canada Ltd., being at the present time Accountant of their Montreal Office. In addition to being President of our Society, Mr. Bowden is a director of the Montreal Credit Institute, a member of the Canadian General Accountants' Association and an Associate member of the Chartered Institute of Secretaries. Unfortunately, he was stricken with illness during the summer months and has since been confined to his bed, but is improving nicely and all members of the Society will wish for his speedy and complete recovery.

BACK NUMBERS WANTED

The following copies of Cost and Management are urgently required:

July, 1933; August, 1933.

Any member who has such copies to spare is asked to kindly mail same to head office.

